

NOTES ON *CYPERUS* AND *KYLLINGA* (CYPERACEAE) IN MISSISSIPPI WITH RECORDS OF SIX SPECIES NEW TO THE STATE

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ABSTRACT

Field and herbarium studies have yielded six species of *Cyperus* (Cyperaceae) new to Mississippi, U.S.A.: *Cyperus aggregatus*, *C. difformis*, *C. ovatus*, *C. oxylepis*, *C. pilosus*, and *C. thyrsiflorus*. At least one of these, *C. difformis*, has potential to be a serious threat as an agricultural weed. Additionally, significant range extensions for other species of *Cyperus* and *Kyllinga* are reported. Locality and habitat data are provided for all species reported.

INTRODUCTION

While preparing a synoptical treatment of *Cyperus* and *Kyllinga* as a contribution to the revitalized Flora of Mississippi Project, under the direction of Dr. Sidney McDaniel, Mississippi State University and Institute for Botanical Exploration, we have examined specimens in the following herbaria: IBE, MISS, MISSA, SWSL, VDB, VSC, personal herbarium of Charles T. Bryson (ctb), herbarium of the Mississippi Museum of Natural Science, and herbarium of the University of Southern Mississippi.

The only comprehensive list of the vascular flora of Mississippi was published in 1921 by Lowe. Since this work was published, knowledge of the flora of Mississippi has expanded greatly. However, Lowe's work, although outdated, must necessarily serve as a base line for general floristic work in Mississippi. Other references dealing exclusively with *Cyperus* and *Kyllinga*, which we have used as sources for distributional data are Kükenenthal (1935-1936), McGivney (1938), Corcoran (1941), and Horvat (1941).

Intensive field work in southern Mississippi during August and September 1991 has yielded four *Cyperus* species, *C. aggregatus*, *C. difformis*, *C. oxylepis* and *C. pilosus*, previously unknown in Mississippi. Moreover, we have found specimens of two additional species, *Cyperus ovatus* and *C. thyrsiflorus*, which have not been previously reported from Mississippi.

NEW STATE RECORDS

Cyperus aggregatus (Willd.) Endl. is a neotropical weed, apparently introduced into the southeastern United States. It has been called *C. huarmensis* (H.B.K.) M.C. Johnston, *C. cayenensis* (Lam.) Britton, and *C. flavus* (Vahl) Nees. However, Tucker (1985) determined *C. aggregatus* to be the correct name. In southeastern United States, it is known from Florida (Clewett 1985), Louisiana (Horvat 1941), and Texas (Correll & Johnston 1970). In Pensacola, Florida, *C. aggregatus* has been observed to be an aggressive weed of open sandy lots (Carter 8075, 8 Aug 1989, IBE, MO, SWSL, VDB, VSC). Following are the first records of this species from Mississippi.

Collection data. U.S.A. MISSISSIPPI. Stone Co.: W of Wiggins, 1.2 mi N of jct of hwy US 49 and MS 26 (3 mi S of county line), W side of Hwy US 49 at roadside park, sandy soil on ridge top, T2S R12W SW1/4 S4, 16 Sep 1991, *Bryson & Newton 10982* (BRIT/SMU, ctb, IBE, MICH, MISS, MISSA, MO, NLU, SWSL, TAES, VDB, VSC); SW of Wiggins, 0.4 mi S jct hwy US 49 and MS 26, W of hwy US 49, T2S R12W S25, open sandy slope, 16 Sep 1991, *Bryson & Newton 10988* (ctb, IBE, SWSL, VSC); just NE of Red Creek jct with hwy US 49 (N of hwy US 49 exit to Perkinston), T3S R11W NW1/4 S18, open to partially shaded sandy soil above Red Creek, 16 Sep 1991, *Bryson & Newton 11001* (ctb, IBE, SWSL, VSC).

Cyperus difformis L. is ranked by Holm et al. (1991) as the thirty-second most important weed pest in the world. It is wide-ranging and occurs in southern Europe, Asia, Central America, North America, Australia, and the Pacific Islands (Kükenenthal 1935 – 36). It is a particularly vexatious pest because of its rapid generation time and high reproductive potential (Holm et al. 1991). In the United States, *C. difformis* has been known from Virginia since 1934 and is a troublesome weed of rice in California (Bryson 1984). It is also known from New Mexico (McGivney 1938), Texas (Lipscomb 1980), Louisiana (Thieret 1964), Alabama (Kral 1973), Florida (Burkhalter 1985), Tennessee (Webb & Dennis 1981), North Carolina (Tyndall 1983), and Pennsylvania (Smith 1986). Its occurrence, range expansion, and habitat requirements in the United States have been documented by Lipscomb (1980) and Tyndall (1983). Following are data for the first collections of *Cyperus difformis* from Mississippi.

Collection data. U.S.A. MISSISSIPPI. Jackson Co.: Pascagoula, 1 mi S by hwy MS 611 from jct with hwy US 90 and MS 63, vicinity of Bayou Casotte industrial development area, open sandy ditch and low area between railroad track and hwy 611 across from and N of Consolidated Pipe & Supply, T8S R5W S4&5, 16 Sep 1991, *Bryson & Newton 11058* (BRIT/SMU, ctb, DSC, IBE, MICH, MISS, MISS, MO, SWSL, TAES, VDB, VSC, additional specimens to be distributed later). George Co.: E of Lucedale, 2.3 mi E of jct hwy MS 26 & 63, 1.8 mi S jct hwy US 98 & MS 63, T1S R6W S1/2 S26, 17 Sep 1991, *Bryson & Newton 11076* (BRIT/SMU, ctb, DSC, IBE, MICH, MISS, MISS, MO, SWSL, TAES, VDB, VSC, additional specimens to be distributed later).

Cyperus ovatus Baldwin (= *C. pollardii* Britton in Small) is closely allied with *C. retrorsus* Chapman. All collections of *C. ovatus* from Mississippi, which were

made prior to ours, were identified as *C. retrorsus*. *Cyperus ovatus* can be readily distinguished from *C. retrorsus* by its yellowish ascending scales. *Cyperus ovatus* is primarily a species of peaty sands in coastal flatwoods. It occurs along disturbed margins of ponds, edges of saltmarshes and streams, in bogs and pineland savannas, and in ditches. It is distributed throughout Florida and northward in the outer Atlantic coastal plain into North Carolina and westward along the Gulf coast into Louisiana (Carter, in prep.).

Specimens examined. U.S.A. MISSISSIPPI. **George Co.:** Lucedale, 16 May 1954, *Demaree* 35195 (USF). **Harrison Co.:** 1 block N of main intersection in Cuevas, 11 Sep 1979, *Carter* 2105 (ctb, IBE, VDB, VSC); N Gulfport, 4 mi N of Gulf of Mexico, along hwy US 49, 12 Sep 1979, *Carter* 2123 (ctb, IBE, MO, VDB, VSC); just S of Woolmarket at interchange of hwys US I-10 and MS 67, 27 Aug 1991, *Carter & Bryson* 9054 (ctb, IBE, VSC). **Jackson Co.:** Petit Bois Island, 4 Aug 1953, *Demaree* 33523 (USF); Ocean Springs, ca Gulf Coast Research Lab, 17 Sep 1970, *Jones et al* 20470 (MISS, VDB); 7 mi E Moss Point, S hwy US 90, along Franklin Creek Rd, 24 Jul 1989, *Bryson* 8691 (ctb, VSC); Ocean Springs, recently disturbed vacant lot just NW of corner of hwy US 90 and Washington Street, 27 Aug 1991, *Carter & Bryson* 9069 (ctb, IBE, MICH, MISS, MO, SWSL, TAES, VDB, VSC); Ocean Springs, edge of saltmarsh at entrance to Gulf Coast Research Laboratory, S end of Halstead Rd, 27 Aug 1991, *Carter & Bryson* 9079 (ctb, IBE, MICH, MO, SWSL, TAES, VDB, VSC). **Pearl River Co.:** Picayune, intersection of hwys US I-59 and MS 43, just W of I-59, 26 Aug 1991, *Carter & Bryson* 8998 (ctb, IBE, MICH, MISS, MISSA, MO, NLU, NYS, SWSL, TAES, VDB, VSC); ditch along hwy US I-59 pull off, 2.5 mi N of Carriere, 26 Aug 1991, *Carter & Bryson* 9010 (IBE, MICH, VSC). **Stone Co.:** roadside SE Perkinston, hwy US 49, 16 Sep 1991, *Bryson & Newton* 11015 (ctb, VSC).

Cyperus oxylepis Nees ex Steudel is readily distinguished by its viscid herbage. Moreover, it is distinctively and pleasantly aromatic, the fragrance being somewhat like that of cured juniper wood. The only other *Cyperus* with which it is likely to be confused is related *Cyperus elegans* L. The following key distinguishes these two species.

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| Scales grayish brown; achenes obovoid, 0.7 – 1.0 mm broad, black | <i>Cyperus elegans</i> |
| Scales golden yellow; achenes oblong, ca 0.5 mm broad, brown | <i>Cyperus oxylepis</i> |

Cyperus oxylepis is distributed primarily in South America and the Caribbean (Kükenthal 1935 – 1936, p. 167). It is apparently introduced into North America. In the United States *C. oxylepis* occurs along the Gulf and southern Atlantic coasts in disturbed fine-textured soils with shell deposits, such as fill and dredge areas in vicinity of ports. It was first reported in the United States from Texas by O'Neill (1938b) and, subsequently, has been reported from Louisiana (Thieret 1964) and South Carolina (Tucker 1987, p. 402). Recently, it has been discovered for the first time in Mississippi.

At the Mississippi site, *Cyperus oxylepis* was found to be locally abundant in a heavily disturbed fill area along the coast. The population consisted of more than 1000 plants confined to an area of about 200 acres. Collection data for *C. oxylepis* in Mississippi follow.

Collection data. U.S.A. MISSISSIPPI. Jackson Co.: Pascagoula, port development E of city in vicinity of Bayou Casotte, S of city animal shelter at S end of Louise Street, 0.4 mi S of Washington Avenue, heavily disturbed fill area, clay with oyster shell fragments, 27 Aug 1991, *Carter & Bryson 9061* (BRIT/SMU, ctb, DSC, IBE, MICH, MISS, MISSA, MO, NLU, NY, NYS, SWSL, TAES, US, VDB, VSC, additional specimens to be distributed later).

Cyperus pilosus Vahl is a weed of tropical or subtropical regions of Asia, Australia, and West Africa (Kükenthal 1935–1936, p. 93–94) and is a common weed of rice fields in Asia (McGivney 1938). It was apparently introduced into North America from the Old World and was first reported in the United States from Louisiana by (O'Neill 1938a). Subsequently, it was reported from western Florida by Burkhalter (1985), and in 1989 it was relocated in Tangipahoa Parish, Louisiana (*Carter 8112*, IBE, MO, NLU, SMU, SWSL, VDB, VSC).

Cyperus pilosus is unlike any other North American *Cyperus* and can be readily distinguished in the field by its rhizomatous habit; wing-angled, scabrid culm; and open inflorescence with hispid rhachides and pale scales. *Cyperus pilosus* has not been previously reported from Mississippi. Following is the first report of this species from the state.

Collection data. U.S.A. MISSISSIPPI. Jackson Co.: Ocean Springs, recently disturbed vacant lot just NW of corner of hwy US 90 and Washington Street, 27 Aug 1991, *Bryson & Carter 10880* (ctb, IBE, MICH, MISS, MISSA, MO, NLU, NY, NYS, SWSL, TAES, US, VDB, VSC).

Cyperus thyrsiflorus Schlechtend. & Cham. is rare to infrequent in southeastern United States. It is known from Florida, southern Alabama, Louisiana, Texas, the Caribbean, Mexico, and South America (Horvat 1941). It is closely related to *Cyperus tetragonus* Elliott but differs from this species in its narrower leaves and spikelets. *Cyperus thyrsiflorus* has not been previously reported from Mississippi. Following is collection data from a specimen found at MISSA, which has been determined to be *C. thyrsiflorus*.

Collection data. U.S.A. MISSISSIPPI. Adams Co.: loessal bluffs, 1 mi N of Doloroso, frequent on steep mesic slope with mixed hardwood cover, 28 Jun 1956, *Ray 6584* (MISSA).

OTHER NOTEWORTHY COLLECTIONS

Cyperus lancastricensis Porter in Gray was first reported from Mississippi by Morris (1988). This report was based upon a collection from Grenada County in northwestern Mississippi. Subsequently, it has been found in two additional counties in the northeastern quadrant of the state. Following are data on these more recent collections of *C. lancastricensis* from Mississippi.

Collection data. U.S.A. MISSISSIPPI. Lee Co.: NE Tupelo, sandy hilltop E of Saltillo Road between Tupelo and Saltillo, 21 Aug 1987, *Bryson 6953* (ctb). Tishomingo Co.: just N of Tishomingo State Park, along open, sandy roadside on Natchez Trace Parkway, 25 Jul 1987, *Bryson 6674* (ctb).

Cyperus retroflexus Buckley [= *C. uniflorus* Torrey & Hooker, auct. non

Thunberg (fide G.C. Tucker 1987)] was first reported from Mississippi by Carter et al. (1987) and recently has been reported new to Missouri (Carter & Bryson 1991). *Cyperus retroflexus* is a weed of open sandy or sandy loam soils and is often associated with *Cyperus retrorsus* and *C. croceus* Vahl. Since the initial report from Bolivar and Scott counties, Mississippi, it has been located in two additional and widely separated counties in northern Mississippi, one on the western side of the state and the other on the eastern side. Data for these additional collections follow.

Collection data. U.S.A. MISSISSIPPI. Oktibbeha Co.: Plant Science Farm, Mississippi State University, S of hwy US 82, on edge of field, 5 Sep 1990, *Bryson 10324* (ctb, VSC). Washington Co.: W of Greenville, across Archer Island, 0.5 mi N of state line, T18N R9W S/2 S8, sand blows and low sandy ridges above Mississippi River, open areas along edge of bottomland hardwood forest, 20 Sep 1990, *Bryson 10430* (ctb, VSC).

Kyllinga brevifolia Rottb. is a pantropical weed (Tucker 1984). Distribution maps in Delahoussaye and Thieret (1967) show only two dots outside of the outer Gulf and Atlantic coastal plains in the southeastern United States. One of these is in southeastern Oklahoma, and the other is in north central North Carolina. In Mississippi, *K. brevifolia* is occasional to common in the coastal counties. Elsewhere in southern Mississippi, it is an occasional pest in *Stenotaphrum secundatum* (Walt.) Kuntze (St. Augustine grass) on turf farms and in lawns. Previously, it was not known from northern Mississippi. Recently, it has been found growing in Washington County, Mississippi, in a lawn of St. Augustine grass and a mulched flower bed. It apparently was introduced into these sites when the lawn was established from turf and when the flower beds were mulched with pine-bark and nuggets.

Collection data. U.S.A. MISSISSIPPI. Washington Co.: Leland, Cypress Street, weed in lawn of St. Augustine grass, 13 Aug 1991, *Bryson 10824* (BRIT/SMU, ctb, IBE, MICH, MISS, MO, NLU, NYS, SWSL, TAES, VDB, VSC); Leland, weed in flower bed mulched with pine bark, Willeroy Street, Presbyterian Church, 14 Sep 1991, *Bryson 10973* (ctb, VSC).

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